#include<stdio.h>

#include<math.h>

#include<GL/glut.h>

#define pi 22/7

int i=0,j,k,n;

float sum=0;

float m[10][3],mt[3][3],mPdt[10][3];

float tx= 5 , ty = 5 ;

float sx= 2 , sy = 2 ;

float theta = 30;

void init(){

glClearColor( 0.0,0.0,0.0,1.0 );

gluOrtho2D( -100 , 100 , -100 , 100 );}

void matrixInit(){

for(i=0;i<3;i++)

for(j=0;j<3;j++)

mt[i][j]=(i==j);}

void matrixMult(){

for( i=0;i<n;i++ ){

for( j=0;j<3;j++ ) {

for( k=0;k<3;k++ )

sum=sum+m[i][k]\*mt[k][j];

mPdt[i][j]=sum;

sum=0; } } }

void matrixCopyPdt(){

for(i=0;i<n;i++)

for(j=0;j<3;j++)

m[i][j]=mPdt[i][j]; }

void rotate(){

matrixInit();

mt[0][0]=cos(theta\*pi/180);

mt[0][1]=sin(theta\*pi/180);;

mt[1][0]=-sin(theta\*pi/180);;

mt[1][1]=cos(theta\*pi/180);;

matrixMult();

matrixCopyPdt();}

void display(){

glClear( GL\_COLOR\_BUFFER\_BIT );

glBegin(GL\_LINE\_LOOP);

glColor3f( 1.0 , 0.0 , 0.0 );

for( i = 0 ; i < n ; i++ )

glVertex2f( m[i][0] , m[i][1] );

glEnd();

glutSwapBuffers();}

void keyPressed( unsigned char key , int x , int y ){

switch(key){

case 'r': rotate(); break;}}

int main( int argc, char \*\*argv ){

printf( "\n Enter the no: of vertices : " );

scanf( "%d",&n );

printf( "\n Enter the points (x,y) : " );

for( i = 0 ; i < n ; i++ )

scanf( "%f%f",& m[i][0], &m[i][1] )

for( i = 0 ; i < n ; i++ )

m[i][2] = 1 ;

glutInit( &argc , argv );

glutInitDisplayMode( GLUT\_DOUBLE | GLUT\_RGBA );

glutInitWindowSize( 650 , 650 );

glutInitWindowPosition( 10 , 10 );

glutCreateWindow( "2D Trans" );

init();

glutDisplayFunc( display );

glutIdleFunc( display );

glutKeyboardFunc( keyPressed );

glutMainLoop();

return 0;

}

